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CONFIGURATION AND INVENTORY ACCOUNTING FOR TORPEDO MK 48 SUPPOR--ETC(U)
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CONFIGURATION AND INVENTORY ACCOUNTING FOR TORPEDO MK 48 SUPPORT EQUIPMENT

September 1974

Prepared for

U.S. NAVAL TORPEDO STATION
Keyport, Washington

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Prepared by

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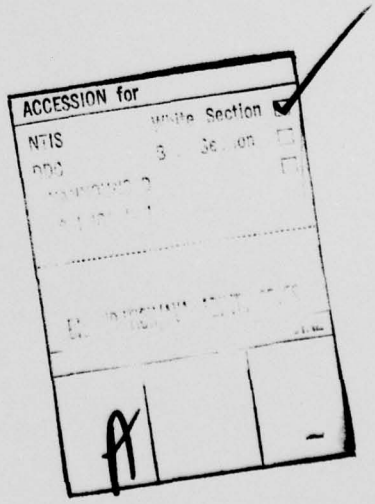
1. INTRODUCTION

The PARR (Performance and Reliability Reporting) system does not presently have an automated method for configuration and inventory accounting of Torpedo Mk 48 support equipment. The support equipment includes several independent pieces of hardware of varying levels of complexity. Of these, the Mk 541 Automatic Test Equipment (ATE) is the most complex and is the most likely candidate for an automated configuration and inventory accounting system.

Attempts have been made to develop such a system based on various logistics raw data supplemental to the PARR system, e.g., the DD-250 and DD-1348 supply transaction documents. That system was unsuccessful, however, because of the time required to transcribe information manually from these forms, and the difficulty in getting the documents consistently delivered to NTS/PARR. Continued reliance on these supply documents is not recommended in any case since tracking will become even more difficult as ATE logistics channels expand and become integrated with normal supply and requisition systems.

The following discussion establishes an automated configuration and inventory accounting system for the Mk 541 ATE that relies on currently available PARR data for updating. A similar system can be applied to other major items of support equipment.



2. PROPOSED CONFIGURATION/INVENTORY SYSTEM

The optimum depth of reporting within each of the Mk 541 test sets presently covered by the PARR system appears to be to the drawer level. The assemblies (approximately 65) are identified in Table 1 by reference designator number and are identical to the items for which logistic reports are presently required by Appendix D of NAVORD Instruction 4790.5A, Torpedo Mk 48 System Maintenance and Deficiency Data Collection Procedures Manual.

Configuration tracking could be carried to a lower level of indenture for selected assemblies when required. However, a blanket request for tracking all units below the drawer level is not recommended because of the pyramid structure of the subassemblies. Extending one level below the drawer level would introduce hundreds of new items.

The support equipment configuration and inventory accounting system should be able to provide the following information relative to the hardware:

a. Serial and part numbers of the major units (drawers or other selected assemblies) of specific Mk 541 test sets.

b. Modifications performed on major units of specific Mk 541 test sets.

c. Where particular major units of Mk 541 test sets are located. This location would be a UIC (Unit Identification Code) if the major unit was a spare and not installed in a specific Mk 541.

This information could be provided from data routinely reported on data collection forms prepared in accordance with NAVORD Instruction 4790.5A. The initial input required to establish the starting point on each test set would come from a one-time physical inspection. This inspection would require recording and reporting to NTS/PARR the part number, serial number, and a list of alterations accomplished for each major unit in a test set.

Updating would consist of reading data inputs that report logistic, alteration, or deficiency data. These reports give the serial number of the Mk 541 test set,

TABLE 1. MARK 541 AUTOMATIC TEST EQUIPMENT

Ref. Des.	Nomenclature	Ref. Des.	Nomenclature
18	MK 541 ATE	18A4	Unique Section
18A1	Controller Section	18A4A1	Junction Box
18A1A1	Junction Box	18A4A2	Unique Digital Interface
18A1A2	Counter Timer	18A4A3	Sys Test Unit
18A1A3	Digital Multimeter	18A4A4	CCU, ACT, HCL Xdcr Unit
18A1A4	Counter/DMM Interface	18A4A5	Xmtr, GCU, Rcvr Unit
18A1A5	Tape Transport	18A4A6	PCU Unit
18A1A6	Control Panel	18A4A7	Gyro Table Electronics
18A1A7	Shelf	18A4A8	Pwr/Digital Interface
18A1A8	I/O Unit	18A4A9	Pwr Sply 4
18A1A9	Tape/Printer Interface	18A4A12	Warhead Unit
18A1A10	Arithmetic/Macro Unit		
18A1A12	Service Panel		
18A1A14	KBP Send/Rcv Unit	18A5	Hyd Section
18A1A15	Reperf/Xmtr Module		
18A2	Common Section	18A5A1	Junction Box
		18A5A2	Pwr Sply 5
18A2A1	Junction Box	18A5A3	Pwr Load Chassis
18A2A2	Freq Synthesizer	18A5A4	Hyd Source
18A2A3	Speed Simulator/Pwr Amp	18A5A5	Xmtr Load Bank
18A2A4	Launch Sea Ctl/Inverter		
18A2A5	Trigger Sequencer		
18A2A6	S/D-D/S Converter	18A6	Power Section
18A2A7	Depth Simulator		
18A2A8	Prog Pwr Sply	18A6A1	Junction Box
18A2A9	Pwr Sply 1	18A6A2	Alt/Pwr Load Ctl
18A2A10	Pwr Sply 2	18A6A3	Matrix 11
18A2A11	Pwr Sply 3	18A6A4	Capacitor Load Bank
18A3	Switch-Matrix Section	18A6A5	Alternator Drive Assy
		18A6A6	Alternator Load Bank
18A3A1	Junction Box	18A6A9	Alternator
18A3A2	Matrix 1		
18A3A3	Matrix 2	18A7	Acoustic Test Stand
18A3A4	Matrix 3		
18A3A5	Matrix 4	18A8	Gyro Test Table
18A3A6	Matrix 5		
18A3A7	Matrix 6	18A19	Exploder Cavity Adapter
18A3A8	Test Control		
18A3A9	Matrix 7	18A20	Pressure Test Equipment
18A3A10	Matrix 8		
18A3A11	Matrix 9		
18A3A12	Matrix 10	18A21	Warhead Coil Test Dolly

indicate the serial number of any unit being acted upon, and could consist of any of the following:

a. Alteration Performed. The accomplishment of an alteration is indicated on the data collection form by the existence of entries in the "ORDALT/Change" and "Report Type" blocks. The automated configuration and inventory accounting system would be required to locate the hardware referenced in the report by part number/serial number and to indicate the accomplishment of the alteration. Because of the difficulty involved in determining whether an alteration is performed against a subassembly or major assembly, it would be advisable to show all alterations against both the Mk 541 and the individual subassemblies.

b. Logistics Transfer. A logistics transfer of a spare piece of trackable hardware is indicated by entries in the "Shipped-To" or "Received-From" blocks on the data collection form and by the "Report Type" block. The automated configuration and inventory accounting system would be required to locate the hardware referenced in the report by part number/serial number, and to indicate the transfer. This type of action would affect only spare assemblies and would not have a Mk 541 serial number. The transfer would then be from one UIC number to another as indicated in the appropriate blocks.

c. Removal or Replacement. A removal or replacement of a trackable assembly is indicated by the serial number and replacement serial number blocks on the data collection form. (At present a serious deficiency exists in the data collection form because of the lack of a block that can be used to indicate the part number being installed.) The automated configuration and inventory accounting system would be required to locate the hardware referenced in the report by part number/serial number and to indicate the transfer. This transfer would consist of the following steps:

1) Remove part number xxx, serial number xxx, from Mk 541 test set number xxx, and transfer to "spare" status.

2) Install part number xxx, serial number xxx, in Mk 541 test set number xxx.

Table 2 shows an example of displaying all data applicable to a specific Mk 541 test set. Retrieval of data in this format, after updating has been accomplished, would show the latest known configuration for each test set. Spares would be shown at the location (UIC) level instead of the test set level, i.e., a UCI number would appear in the serial number block. Also, multiple serial number entries could occur for any reference designator number of a spare.

TABLE 2. MARK 541 ATE CONFIGURATION AND INVENTORY REPORT

ATE MK 541 SERIAL NUMBER: 456 DATE: 1 Jan 1974 ALTERATION SUMMARY: 1) ORDALT 10123
2) ORDALT 10133
3) ECP 73-100
4) _____

Reference Designator	Nomenclature	Part Number	Serial Number	Alterations
18A1A1	Junction Box	63033	456	None
18A1A2	Counter Timer	63423	678	ECP 73-100
18A1A3	Digital Multimeter	63424	890	ORDALT 10133
18A1A4	Counter/DMM Interface	62984	480	ORDALT 10123

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